

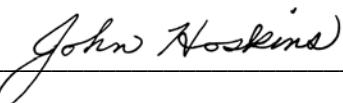


MISSOURI'S COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY

"Missouri is unique – unique in its history, unique in the way in which the Conservation Commission derives its authority from the people, unique in its funding, and unique in the passion and commitment that is exhibited every day by those who work for the Department of Conservation. Conservation has inherited a great legacy in Missouri because it was created by and for its people"

- John Hoskins, Director
Missouri Department of Conservation

Approval to submit Missouri's Comprehensive Wildlife Conservation Strategy to the U.S. Fish and Wildlife Service was accepted by the Missouri Conservation Commission on August 18, 2005.



John D. Hoskins, Director
Missouri Department of Conservation

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competitively awarded State Wildlife Grant.**

MISMOURÍ'S COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY

EXECUTIVE SUMMARY: A GUIDE TO THE 8 REQUIRED ELEMENTS

Missouri's Comprehensive Wildlife Conservation Strategy is an approach to conservation planning that uses ecologically-based assessments and existing plans to integrate conservation action for *all wildlife*. We won't be able to conserve every plant and animal one at a time, so our Strategy emphasizes functioning habitats, natural communities and healthy landscapes. Only in this context will we address the needs of plants and animals that are presently Species of Conservation Concern and conserve habitat for *all wildlife*.

Missouri has a long history of managing *all wildlife*. Particularly since the passage of Design for Conservation in 1976, ecologists, biologists and managers have led efforts to identify declining plants and animals and conduct comprehensive inventories for species of conservation concern and natural communities. These inventories are tracked by the Natural Heritage Program. The information in this database is used to conduct periodic status reviews in order to maintain a list of species of conservation concern and to identify further inventory and conservation needs. An active land acquisition program has allowed the Department to purchase habitat for wildlife diversity. One of the benefits of this approach is that Missouri has one of the strongest programs of designated Natural Areas in the Midwest.

The primary purpose of Missouri's Strategy is to develop guidance on the best places in Missouri to go to work for *all wildlife*. The goal of our Strategy was to utilize all of the information acquired in the last 30 years to identify a set of Conservation Opportunity Areas (COAs) that will support and conserve viable populations of *all wildlife* and the systems they depend on. We utilized an ecological framework to guide terrestrial and aquatic assessments. Target species, habitats, natural communities and landscapes were identified for each ecological unit. Department biologists set geographic priorities based on these rigorous assessments. Spatial data layers were developed and utilized to identify concentrations of conservation targets. Our conservation partners then shared their priorities with us. We combined all of this information to identify a framework of conservation opportunity that represents the diversity of Missouri. The present framework includes the top 33 areas to promote conservation action with partners. Each COA has a team of partners that drafted profiles to describe the conservation opportunity – a common vision.

Make the Plan-Strategy an effective long-lasting blueprint for conservation that provides a broad vision and priorities, so a broad array of organizations, including other government agencies and NGOs, can help realize the vision.”

From “Guiding Principles for States to Consider in Developing Comprehensive Wildlife Conservation Plans and Wildlife Conservation Strategies” -- Wildlife Diversity Program Managers

Our Strategy is more like an action plan – a way to go about the business of conservation planning and implementation. Where do the Department of Conservation, other public agencies, private conservation organizations and citizen conservationists want to go to work for Species of Conservation Concern and their habitats? The framework of COAs is the most promising description of where to start. Describing a Conservation Opportunity Area won't automatically mean more conservation action, but with leadership and coordination provided by the Department or by empowered conservation partners, successful conservation action for *all wildlife* will be far greater than if the Department were acting alone.

The framework of our Strategy is designed to be adaptive. The data layers and spatial products relating to the Strategy will not be the same a year from now. New and different partners will represent additional conservation priorities. The Strategy will change with new information, change because of habitat loss and degradation, change because effectiveness monitoring tells us to chart a different course. The vision for any one Conservation Opportunity Area may stay the same, but the priority conservation actions and who is delivering them will change significantly through time.

Congress identified eight required elements to be addressed in each state's Comprehensive Wildlife Conservation Strategy. The following is a brief summary of how each element has been addressed in Missouri's Comprehensive Wildlife Conservation Strategy.

“The process may be more important than the product.”

Wildlife Diversity Program Managers

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2. *The Terrestrial Natural Communities of Missouri* by Paul W. Nelson
3. *Atlas of Missouri Ecoregions* by Timothy A. Nigh and Walter A. Schroeder
4. MDC Terrestrial Biodiversity Assessment
5. MDC Aquatic Biodiversity Assessment
6. MDC Regional Assessment Reports (example – MDC Northwest Region)
7. *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity*
8. Urban Wildlife Program Strategic Plan
9. Aquatic Nuisance Species Management Plan
10. October 2005 *Missouri Conservationist* – Special Issue on All Wildlife Conservation

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1. CWCS Executive Summary – A Guide to the 8 Required Elements
2. Missouri Biodiversity Assessment Process and Results
3. CWS to CFM
4. All Wildlife Conservation in Missouri
5. Basic Elements of Conservation Planning
6. Ecological Classification System in Missouri

Table 1. CWCS Products and the required element(s) they address.

Products	Required Elements						
<i>Missouri Species and Communities of Conservation Concern Checklist</i> (Attachment 1)	1						
Wildlife lists by Ecological Section and Primary Habitat Association (Appendix C)	1				5		
Heritage Hotspots (assessment, spatial layer, map) (Appendix G)	2						
4 MDC Terrestrial Biodiversity Assessments (Attachment 4)	1	2	3		5		
17 MDC Aquatic Biodiversity Assessments (Attachment 5)	1	2	3				
<i>The Terrestrial Natural Communities of Missouri – Nelson</i> (Attachment 2)	1	2	3				
<i>Atlas of Missouri Ecoregions</i> – Nigh and Schroeder (Attachment 3)	1	2	3				
8 MDC Regional Assessments Reports (Attachment 6)	2						
Conservation Opportunity spatial layers (MDC and partners) (Appendix H)	2						8
Conservation Opportunity Area Co-occurrence (spatial layer/map) (Appendix I)	2						8
Conservation Opportunity in Missouri (composite spatial layer, map) (Appendix J)	2						8
Missouri Natural Areas System Spatial Layer (Appendix E)	2						
<i>Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity</i> (Attachment 7)	2	3	4	5			8
Urban Wildlife Program Strategic Plan (Attachment 8)			3				
Aquatic Nuisance Species Management Plan (Attachment 9)			3				
Threatened and Endangered Species Action Plans (Appendix K)		3	4				
Missouri Department of Conservation Surveys (Appendix M)				5			
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Executive Summary – A Guide to the 8 Required Elements					5	6	7
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Guidance for Conservation Opportunity Area Stakeholder Teams (Appendix S)							8

1. Information on the distribution and abundance of species of wildlife, including low and declining populations as the State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's wildlife.

Information on the distribution and abundance of Missouri wildlife is available in books, references, reports, databases and voluminous files maintained by Department biologists and species specialists. For the purposes of Missouri's Strategy, however, two databases provide information on species distribution and abundance that is regularly assessable and routinely updated. Expert input was used routinely to develop and evaluate information about wildlife distribution and abundance.

The Missouri Fish and Wildlife Information System (MOFWIS) is a species database that summarizes information about distribution, habitat requirements, status, life history and management of Missouri's plants and animals. All information in the database is referenced. MOFWIS currently contains 940 species records, and includes information about all vertebrate species in the state, plus selected invertebrates and plants (Appendix A). The database has been updated continuously from 1980 through present. New information is obtained from published and unpublished reports, theses and personal communication from biologists and is added to the database as it becomes available. Individual species reports and species lists generated by simple queries are available to the public via the Missouri Department of Conservation's public web page (www.mdc.mo.gov/nathis/mofwis). More detailed reports can be requested from the Database Manager (Julie Fleming, 573-882-9909, ext. 3253).

The Missouri Natural Heritage Database (Heritage) is the single most comprehensive source for information about species and natural communities of conservation concern. Heritage data is widely used and integral to sensitive species conservation. This includes information on distribution and abundance (state status, Heritage ranks). We have data-sharing agreements with all federal agencies that operate within Missouri, as well as state agencies that impact natural resources. Local and regional land trusts, planning boards and councils also use Heritage data to plan conservation and development activities. Heritage data is accessible on the internet (low resolution by topographic quad) and on compact disc (exact locations) for requestors willing to sign a data-use agreement. Element occurrence (EO) records are continually submitted by field staff, volunteers and other

“Scientists and planners seek to identify a set of conservation targets that presumably represent the biodiversity of a region.... The assumption is that, by focusing planning efforts on these targets, there will be a high likelihood of conserving the vast majority of living organisms in a region, both those known to science and the many yet to be discovered.”

C. R. Groves, et al., 2002

organizations and agencies as surveys, monitoring and inventory work takes place. Heritage data management staff work to enter and update these EO records daily (Appendix B). There were more than 400 EOs submitted to the data management staff and over 800 EOs mapped or updated by the Heritage during the first six months of 2005. The backlog of records is prioritized by federal and state status and rank for entry into the database. Reports and simple queries are available to the public via the Missouri Department of Conservation's public web page (www.mdc.mo.gov/cgi-bin/heritage). More detailed reports can be requested from the Database Coordinator (Dorothy Butler, 573-522-4115, ext. 3639).

The reference list for plants, animals and natural communities of conservation concern is the *Missouri Species and Communities of Conservation Concern Checklist* (Attachment 1). The species of conservation concern listed in the checklist are those species tracked by the Heritage and include most species ranked S1-S3 and selected S4 species. This reference is updated annually, with the most recent version dated January 2005. Taxonomic authorities can be found in the references section of this publication.

The distribution and abundance of wildlife are constrained by the health and current condition of natural communities and restored habitats. The reference for current conditions of natural communities can be found in *The Terrestrial Natural Communities of Missouri* (Attachment 2).

Process

We used both databases to list all vertebrate wildlife (and selected plants and invertebrates) of Missouri and to associate animals with primary habitats (Appendix C). Habitat categories were consistent with Nelson's classification, *The Terrestrial Natural Communities of Missouri* (Attachment 2). Using database products, we sorted the species by primary habitat category and by ecological section. Expert knowledge, primarily from Department Heritage biologists, was used to review and revise the primary habitat associations for species (Appendix D).

Example - Cerulean warblers are assigned to the FOREST habitat category and they are known to occur in all four ecological sections.

“Indicator species, and related concepts such as umbrella and focal species, are used as surrogates for biodiversity.”

R.J. Lambeck, 1997

The databases also helped assign targeted species of conservation concern to the most appropriate Land Type Association (LTA) described in the *Atlas of Missouri Ecoregions* (Attachment 3). We used spatial layers consistent with the *Atlas of Missouri Ecoregions* to overlay known Heritage sites for species of conservation concern over the ecological framework. Using expert review, we evaluated species and natural communities of conservation concern and assigned “targets” (or focal species) in the most appropriate LTAs.

Example – Cerulean warblers are a target bird in the Ozark Highlands: Oak-Pine Hills LTA, Oak Woodland/Forest Hills LTA and Rugged Hills and Forest Breaks LTA.

The result is that we described the distribution of all wildlife by ecological section and primary habitat (Appendix C) and associated species of conservation concern and other target animals by Land Type Associations (Attachment 4) or by Ecological Drainage Units (EDUs) for aquatic wildlife (Attachment 5). Using this framework, experts can decide where best to conserve species of conservation concern and their habitats. We end up with a complete picture of the status and distribution of species of conservation concern, and with the help of experts we can associate them with the most appropriate LTAs and EDUs – the highest priority places to conserve them.

In the future, this process will be used routinely to review and revise the distribution and abundance of species of wildlife indicative of the health of Missouri.

Key Products

- MOFWIS Database (Appendix A)
- Missouri Natural Heritage Database (Appendix B)
- *Missouri Species and Communities of Conservation Concern Checklist* (Attachment 1)
- *The Terrestrial Natural Communities of Missouri* (Attachment 2)
- Wildlife Lists by Ecological Section and Primary Habitat Association (Appendix C)
- Expert Review List (Appendix D)
- *Atlas of Missouri Ecoregions* (Attachment 3)
- MDC Terrestrial Biodiversity Assessments (Attachment 4)
- MDC Aquatic Biodiversity Assessments (Attachment 5)

Future Steps

1. Continue to support data development in both MOFWIS and Heritage. Add species; update records routinely.
2. Review target lists.
 - Review and revise target animals with additional expert review.
 - Review and revise target plants with guidance from *The Terrestrial Natural Communities of Missouri* (Attachment 1) and additional expert review.
 - Review and revise natural community targets with guidance from *The Terrestrial Natural Communities of Missouri* and additional expert review.
 - Review and revise landscape targets with expert review.

“Conservation targets are those entities whose long-term persistence the conservation effort is attempting to ensure. As such, a conservation target can be biological or nonbiological in nature.”

K. H. Redford, et al., 2003

3. Conduct workshops for each of the primary habitat categories. The purpose of each workshop is to build understanding of targets (species, natural communities and landscapes) and evaluate conservation opportunity within the existing conservation network. Modify spatial data layers and conservation opportunity as a result of the workshop.
4. Inventory species and natural communities of conservation concern to continuously improve distribution and abundance of all wildlife. Emphasis should be on inventory in the Conservation Opportunity Areas, or inventory to fill observed gaps in the framework.
5. Evaluate species of conservation concern, especially those with assigned recovery leaders, against the Conservation Opportunity Area framework.
6. Support independent evaluation of our ecological assessments by primary habitat type.

Selected References

Coppolillo, Pete. Humberto Gomez, Fiona Maisels, and Robert Wallace. 2004. Selection criteria for suites of landscape species as a basis for site-based conservation. *Biological Conservation* 115:419-430.

Fleishman, Erica, Dennis D. Murphy and Robert B. Blair. 2001. Selecting Effective Umbrella Species. *Conservation Biology and Practice* 2(2):17- 23.

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Lambeck, R.J. 1997. "Focal species: A multi-species umbrella for nature conservation." *Conservation Biology* 11:849-856.

Redford, Kent H. et al. 2003. Mapping the Conservation Landscape. *Conservation Biology* 17(1):116-131.

Roberge, Jean-Michel and Per Angelstam. 2003. Usefulness of the umbrella species concept as a conservation tool. *Conservation Biology* 18(1):76-85.

"To represent the biodiversity of a region or ecoregion in conservation areas, we focus on conservation targets, the entities or features for which a conservation plan or project is attempting to ensure long-term persistence."

C.R. Groves, 2002

2. Descriptions of locations and relative condition of key habitats and community types essential to conservation of species identified in (1).

Conservation action for comprehensive wildlife conservation is already occurring in Missouri. Although convenient to separate conservation action by public land and private land, it is not that simple. Public ownership is not necessarily a commitment to wildlife conservation, and some private land produces abundant wildlife. Missouri, a state that is about 7% public land, is primarily producing wildlife on private lands.

For purposes of comprehensive wildlife conservation in Missouri, we collectively refer to the **existing conservation network**. The existing conservation network is much of the public land in the state, but not all. It also includes private lands managed by organizations, individuals and communities if the primary purpose is wildlife conservation. This too, is not a perfect framework for conservation action, but it provides a more effective assessment of conservation opportunity than “public land” alone.

Where are we working today to conserve species of conservation concern and their habitats? The Missouri Natural Heritage Database (Appendix B), the Missouri Natural Areas system spatial layer (Appendix E) and *The Terrestrial Natural Communities of Missouri* (Attachment 2) are key information sources that indicate where Missourians are presently conserving wildlife diversity, high quality natural communities and landscapes.

Reserves alone are not adequate for nature conservation but they are the cornerstone on which regional strategies are built.

C.R. Margules and R. L. Pressey, 2000

Where could we be working to conserve species of conservation concern and their habitats? The Heritage Database and *The Terrestrial Natural Communities of Missouri* are information sources that indicate the location and relative condition of key habitats where we could be working to conserve wildlife diversity. The Heritage Database tracks all of the “knowns” for high quality natural communities, especially those that are declined or of special interest. *The Terrestrial Natural Communities of Missouri* lists representative sites for all natural communities in the classification, including their specific location and present condition. The Missouri Natural Areas System demonstrates the best remaining examples of natural communities as targets for restoration work.

Where do the Department of Conservation, other public agencies and private conservation organizations want to direct additional conservation action for species and natural communities of conservation concern in the future? **The primary purpose of Missouri’s Strategy is to provide guidance on the best places to go to work for comprehensive wildlife conservation.**

Process

Department biologists and managers participated in the development of terrestrial biodiversity assessments (for four Ecological Sections) and aquatic biodiversity assessments (for 17 Ecological Drainage Units). Because we believe the best way to conserve all species is to conserve the ecosystems upon which they depend, the Missouri Department of Conservation (MDC) used an ecological framework to guide both terrestrial and aquatic biodiversity assessments. Target landscapes, natural communities, habitats and species were identified for each ecological unit. Then, numerous GIS data layers (Appendix F) were used to identify Conservation Opportunity Areas where a concentration of viable targets occurred. Subsequent analyses ensured that we captured multiple occurrences of each target and met our conservation goals.

For a more complete description of the process and results refer to three PowerPoint presentations titled “Ecological Classification System in Missouri,” “Missouri Biodiversity Assessment Process and Results” and “Basic Elements of Conservation Planning.” For a complete overview of the terrestrial assessment process refer to the Executive Summary of the MDC Terrestrial Biodiversity Assessment, March 2005 (Attachment 4). For a complete overview of the aquatic assessment process refer to the Executive Summary of the MDC Aquatic Biodiversity Assessment, April 2005 (Attachment 5).

“The simplest way to protect biodiversity is to incorporate into reserves representatives of all habitats in all biogeographic regions.”

W. J. Ballantine, 1997

As an interim way to communicate the value of the assessments, we combined the results of the terrestrial and aquatic assessments and reorganized the information by Department administrative regions. MDC field operations are divided into 8 regions of the state. The results of the MDC assessments, “repackaged” for each administrative region, were provided to MDC Regional Supervisors (Attachment 6). The information is provided in this form to improve understanding and accommodate regional budgeting. The regional assessment products were made available to all Department staff via the Department intranet.

We also developed a spatial data product, the Heritage Hotspot layer, which produced a neighborhood analysis for species and natural communities of conservation concern. This resulted in a continuous grid of Heritage elements across the state and allowed an expert review team to describe and name the highest concentrations of Heritage elements. Eighty-nine hot spots were identified by this process. These “hot spots” are one tool to identify sensitive species and the key habitats that support them. For a complete overview of the Heritage Hotspot process and results, see Appendix G.

We gathered information on existing partner conservation plans (e.g., The Nature Conservancy portfolio sites) and supported the development of new partner plans and assessments (e.g., Audubon Important Bird Areas), preferably in the form of spatial data

sets. Every conservation partner had its own process for deciding which geographies were important for their work in Missouri. Appendix H lists the various conservation partner spatial data layers and indicates the contact organization and/or person to obtain additional information about each assessment.

A spatially explicit plan is necessary for plan integration.

Sara Vickerman
Defenders of Wildlife

Using GIS technology, we overlaid the various plans and assessments to determine where there were overlapping conservation initiatives (Appendix I). With partners and various conservation biologists we were able to see where we propose to direct conservation action individually, and contrasted this with priority places where other partners wanted to work. Using spatial data sets we constructed a statewide view of Conservation Opportunity, a representation of where we propose to work collectively.

The end result is a spatial layer of conservation opportunity (Appendix J) in Missouri. **The key habitats and communities that sustain species of conservation concern and all wildlife are identified in this framework of Conservation Opportunity Areas and specific project initiatives (under development or to be developed in the future).** See Attachment 7. The targets (species, natural communities and landscapes) are listed in the MDC assessments (Attachments 4 and 5), but will change through time with additional expert review.

Key Products

- Missouri Natural Heritage Database (Appendix B)
- Missouri Natural Areas System Spatial Layer (Appendix E)
- *The Terrestrial Natural Communities of Missouri* (Attachment 2)
- Assessment Spatial Data Layers (Appendix F)
- MDC Terrestrial Biodiversity Assessment (Attachment 4)
- MDC Aquatic Biodiversity Assessment (Attachment 5)
- MDC Regional Assessment Reports (Attachment 6)
- Heritage Hotspots (Appendix G)
- Conservation Opportunity Spatial Layers (Appendix H)
- Conservation Opportunity Area Co-occurrence (Appendix I)
- Conservation Opportunity in Missouri (Appendix J)
- *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity* (Attachment 7)

Future Steps

1. Distribute the Conservation Opportunity Area layer and map to conservation partners. Provide a complete directory of Missouri Conservation Opportunity Areas to partner representatives and participants in the development of the CWCS. Provide CD with all

profiles to conservation partners so that they have ready access to all profiles and initiatives.

2. Support development of spatial layers that represent the priorities of other /new conservation partners. Integrate them into the statewide framework of conservation opportunity.
3. Support revision of the spatial layers that represent the priorities of existing conservation partners. Integrate them into the framework of conservation opportunity.
4. Facilitate stakeholder groups to develop additional COA profiles and descriptions of conservation initiatives.
5. Support field inventories of special features, such as underrepresented natural communities.
6. Provide regional workshops to train field staff on COA development and its use of the data for continual revision.
7. Support inter-divisional COA teams to revise COA boundaries and lead the development of profiles.
8. Make the COA layer available to all partners and to the public.

Selected References

Ballantine, W. J. 1997. "No-take" marine reserve networks support fisheries. In D.A. Hancock, D.C. Smith, A. Grant and J. P. Beumer (eds). Developing and sustaining world fisheries resources: the state and management. Second World Fisheries Congress, Brisbane, Australia. Pages 702-706.

Diamond, David. et al. 2005. Influence of targets and assessment region size on perceived conservation priorities. Environmental Management 35:1-8.

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Roberts, Callum M., Benjamin Halpern, Stephen R. Palumbi, and Robert Warner. 2001. Designing marine reserve networks: why small, isolated protected areas are not enough. Conservation Biology 2(3):11-17.

3. Descriptions of problems which may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats.

The overall condition of ecosystems, as well as management challenges and opportunities are described for ecoregions and landscapes in the *Atlas of Missouri Ecoregions* (Attachment 3).

For natural communities in general, refer to *The Terrestrial Natural Communities of Missouri* (Attachment 2). Status, threats and management considerations are provided for every natural community. Since species are tied to these primary habitats/communities, conservation action should address the habitat/community threats, cross referenced with information from species experts.

For high priority species of conservation concern, the “Threatened and Endangered Species Action Plans” (Appendix K) indicate problems that adversely affect species in their existing and historic range. This information, along with other recovery plans and expert input, was available during the development of the Strategy.

Threats to target species and natural communities were taken into account during development of the Missouri Department of Conservation (MDC) Terrestrial Biodiversity Assessment reports (Attachment 4). Threats to aquatic targets were also described in the MDC Aquatic Biodiversity Assessment report (Attachment 5). In addition, numerous data points showing features that potentially stress aquatic systems (i.e., mines, hazardous waste sites and sewage effluent sources) were used in selection of aquatic Conservation Opportunity Areas (Appendix L).

The problems that may adversely affect species and their habitats are most relevant in the landscapes, natural communities and habitats identified within Conservation Opportunity Areas (COAs). If the assessments led us to the places most likely to be successful for conservation action, the threats assessment may be different than in all of the existing occupied habitat for the species. We expect the threat to be lessened or at least more manageable in Conservation Opportunity Areas. Often threats are poorly understood in specific geographies until conservation action is proposed or implemented.

Process

In the Missouri Strategy, we shared spatial layers of ecological stressors and other indications of threats with stakeholder groups during the assessment process and asked the stakeholders to describe threats and problems relevant to each Conservation Opportunity Area (Attachment 7). For example, serecia lespedeza was identified as a threat by the stakeholder group representing the Cole Camp/Hi Lonesome Conservation Opportunity Area. They included this threat in their list of conservation challenges, management of serecia was identified in their priority conservation strategies and reducing the impact of serecia was identified in the Greater Prairie Chicken Recovery

Initiative. State Wildlife Grants have been used by the Department to treat sericea on public grasslands. The Missouri Bird Conservation Initiative recently directed grants to the Missouri Prairie Foundation to treat sericea on public and private lands in this COA. As stakeholders identify, or are made aware of new threats, they will include them in their conservation strategies and address them through conservation action identified in project initiative descriptions.

Problems that may adversely affect species and their habitats are included in the specific COA profiles. Conservation actions to respond to the threats are identified in specific initiative descriptions (Attachment 7). For example, Cerulean warblers are a target species in the Missouri Strategy. The primary habitat for this species is Forest. The condition of forests in the Ozarks varies significantly within and between Landtypes in the Ozarks. Information on the problems and threats to Ozark forests are described in *The Atlas of Missouri Ecoregions* (Attachment 3), *The Terrestrial Natural Communities of Missouri* (Attachment 2) and the MDC Terrestrial Biodiversity Assessment for the Ozark Highlands (Attachment 4). Ornithologists who lead cerulean warbler conservation used the current known occurrences, combined with information on forest condition in the Ozarks, to recommend where to go to work for this species. These locations were incorporated into the conservation opportunity framework. Problems and threats related to forests that affect cerulean warblers need to be identified, and subsequently addressed, in the COAs by stakeholder groups.

Problems that affect species and habitats are also described in conservation plans that are not necessarily species oriented. For example, threats to healthy wildlife in the urbanizing portions of Missouri are included in the Urban Wildlife Program Strategic Plan (Attachment 8). Threats to aquatic systems are included in the Aquatic Nuisance Species Management Plan (Attachment 9). It will be desirable to review these other agency action plans and evaluate their application in specific COAs with the participation of stakeholders.

The priority research and inventory needs, as identified by the stakeholders, are described in each of the COA profiles (Attachment 7). Priority research and inventory needs were identified during the assessments, and inventory needs are listed for each LTA type in the MDC Terrestrial Assessment. Priority research and inventory related to specific COAs were also identified by the stakeholders. Additional inventory for species of conservation concern was a common theme for nearly all stakeholder groups. However, many of the stakeholders were not aware of the results of the species inventories already conducted. Additional research needs were identified, but many of the research topics identified by stakeholders have already been accomplished. Either the stakeholder groups were not aware of the research or have not had access to the results.

Identifying priority research and inventory needs will need to be an ongoing process, connected to assessments and further refined during the development of COA profiles and specific conservation initiatives.

Key Products

- *Atlas of Missouri Ecoregions* (Attachment 3)
- *The Terrestrial Natural Communities of Missouri* (Attachment 2)
- Threatened and Endangered Species Action Plans (Appendix K)
- MDC Terrestrial Biodiversity Assessment (Attachment 4)
- MDC Aquatic Biodiversity Assessment (Attachment 5)
- Ecological Stressors (Appendix L)
- *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity* (Attachment 7)
- Urban Wildlife Program Strategic Plan (Attachment 8)
- Aquatic Nuisance Species Management Plan (Attachment 9)

Future Steps

1. Review problems and threats to species and their habitats as individual conservation initiatives are proposed and funded in the COAs. Coordinate problem solving of the threats with recovery leaders, the Invasive Species Coordinator, species experts and other agency initiatives.
2. Engage Field Stations in the identification of problems affecting species and their habitats and develop priority research and inventory needs for each major habitat category.
3. Existing research and inventory reports and databases will be made available on MDC Resource Science website.
4. Support better coordination and effort in identifying and controlling invasive plants and animals.

4. Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions.

Conservation actions for species of conservation concern and their habitats are identified in *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity* (Attachment 7). **Conservation Opportunity Areas (COAs) are the priority places for implementing conservation actions.** These are not the only places in Missouri for wildlife diversity conservation, but based on assessments (by the Department and conservation partners) and stakeholder input, the COAs are the highest priority places for comprehensive wildlife conservation.

The COA profiles and project descriptions were designed specifically to improve delivery of conservation action. The introduction to the COA profile describes the opportunity. Other important parts of the profile include: conservation strategies, high priority research and inventory needs, conservation partners (existing and potential), funding sources (existing and promising future sources), a map showing the present boundaries of the COA and the existing conservation network), conservation challenges (perceived problems and threats), contact for further information and selected photographs. For some areas a COA profile is the only product that will be needed to increase conservation action. However, many of the stakeholder groups will also choose to describe specific initiatives or projects.

**Groups respond positively to the idea that the CWCS is an ACTION plan.
Bottom line, keep the focus on the actions that you're identifying, not on how much planning you are doing or how much money you'll spend.**

Dave Chadwick
International Association of Fish and Wildlife Agencies

For example, the Middle Meramec Conservation Opportunity Area describes conservation opportunity in a portion of the Meramec River watershed that will benefit many species (i.e., cerulean warblers, gray bats, zebra swallowtails, smallmouth bass, freckled crayfish, spotted salamanders) and the habitats they depend upon (i.e., mesic forest, riverfront forest, cave, Ozark stream). The COA describes a consistent vision, defines a specific geography and names the existing partners and funds being used presently. While the profile lays out some broad strategies consistent with the vision of the stakeholder group, it does not identify specific actions. The next step for this group is to describe a specific initiative (or initiatives) that will address some of the most pressing conservation needs. Examples might be a bottomland forest restoration initiative, a water quality improvement program, a public awareness campaign about invasive exotics or perhaps development of a cave protection plan.

The conservation actions identified to date, and those identified in the future, are connected to recovery plans, recovery teams and habitat initiatives described by the Department and conservation partners. Successful integration of these initiatives into the COA framework is largely the responsibility of recovery leaders and key biologists. For example, some of the recovery actions from the Threatened and Endangered Species Action Plan (Appendix K) are integrated into this framework. Some of the habitat management for wildlife emphasis species like bobwhite quail and smallmouth bass can be delivered in the conservation opportunity areas. As the Department and our conservation partners develop new initiatives for comprehensive wildlife conservation, the habitat evaluation tools developed for the Strategy are useful to determine where best to direct future resources.

“All of these assessments and priority-setting exercises have a common trait: they focus on relatively large spatial areas or regions inhabited by thousands of species and hundreds of identifiable natural communities.”

C. R. Groves, et al., 2002

The Strategy framework is adaptive. It is designed to change through time. The priority of the conservation opportunity described in the profiles is expected to remain high, however, additional COAs will be developed in the future and existing profiles should be reviewed, revised and improved. The conservation actions will also change, with priorities for specific initiatives determined by stakeholder participation and available funds.

Missouri’s Strategy is a framework to identify conservation action and set priorities. Identifying conservation actions will be an ongoing process. The “first framework” is now in place.

Key Products

- *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity* (Attachment 7)
- Threatened and Endangered Species Action Plans (Appendix K)

Future Steps

1. Continue to build conservation partnerships in COAs.
2. Identify initiatives in the COAs and prepare project initiative descriptions with stakeholder groups.
3. Prepare new COA profiles and revise existing profiles with stakeholder groups.
4. Integrate Natural Area plans, expansions and status reports into conservation progress in the COAs.

5. Recovery leaders will use the CWCS to evaluate conservation action for high priority species of conservation concern and adjust the program accordingly. Update action plans for priority species of conservation concern.
6. Evaluate new and revised species management plans (e.g., bat management plan, crayfish conservation plan) against the existing conservation network and modify the CWCS framework as needed.

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5. Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions.

The Department of Conservation surveys wildlife populations and related public interests in Missouri (Appendix M). Many of these surveys are relevant to species of conservation concern or their habitats.

The Department will monitor species of conservation concern under present program guidelines. The Heritage Database is the primary source for information on species of conservation concern (Appendix B). The responsibility of Heritage Biologists (species and natural community experts with Heritage responsibilities) is to monitor the statewide (range-wide) status of species tracked in Heritage by reviewing the status and distribution based on known occurrences. Tracked species of conservation concern are reviewed periodically, with guidance and oversight from the Endangered Species Coordinator. High priority species are evaluated annually; this will continue to be the primary monitoring system for species of conservation concern. **Habitats and natural communities of special concern are also tracked in the Heritage Database and monitored similarly.** In the case of both species and natural communities, experts make use of new data that may not be in Heritage to evaluate and monitor a species or natural community.

The status and condition of species of conservation concern are likely to be more secure in existing Conservation Opportunity Areas (COAs) than their statewide status would suggest. This is true because the assessments were designed to conserve the most viable populations in the best functioning habitats (based on current knowledge). However, a higher priority level of monitoring is needed for species of conservation concern when they occur in the COAs. Additional inventories, surveys and regular updating of Heritage occurrences in the COAs will provide a higher level of monitoring for species and natural communities where they contribute most to comprehensive wildlife conservation.

Monitoring the effectiveness of conservation actions implemented in COAs is the next step. We decided to build on existing monitoring – to start with an understanding of

“The monitoring program must focus primarily on the focal species but must also consider the responses of a suite of additional nonfocal taxa.”

R.J. Lambeck, 1997

the ongoing monitoring in COAs that would provide measures of effectiveness. The Department of Conservation and our partners are delivering conservation activity, but how is success being monitored? We asked stakeholder groups to identify the existing monitoring framework within the COAs – not just monitoring by the Department of Conservation, but also by conservation partners and citizen groups (e.g., Stream Teams, Breeding Bird Surveys) (Appendix N). We learned that stakeholders were reasonably informed about existing surveys and inventories, but they were

poorly informed about resource monitoring. Based on our evaluation, there appears to be almost no data collection being done in the COAs that would be considered effectiveness monitoring; or, when it does exist, it is not readily available to the conservation community in a form that affects future conservation action. What we presently have in place is not adequate.

Process

We have developed an approach to effectiveness monitoring that will link our targets (species, natural communities and restored habitats, landscapes) to the proposed conservation actions in our project descriptions (Figure 1). The COA advocacy group (stakeholders) provides clarity on the proposed conservation action and desired future condition (example: Roaring River Glade and Woodland Restoration Initiative in Attachment 7). The Department will convene an Expert Review Panel to review wildlife lists for the primary habitat type, refer to the target lists in the assessments and develop a list of “monitorable” species, communities and abiotic factors. Good choices are species that are representative of the habitats, communities that characterize the target landscape and abiotic factors like water quality parameters that provide clues to environmental health.

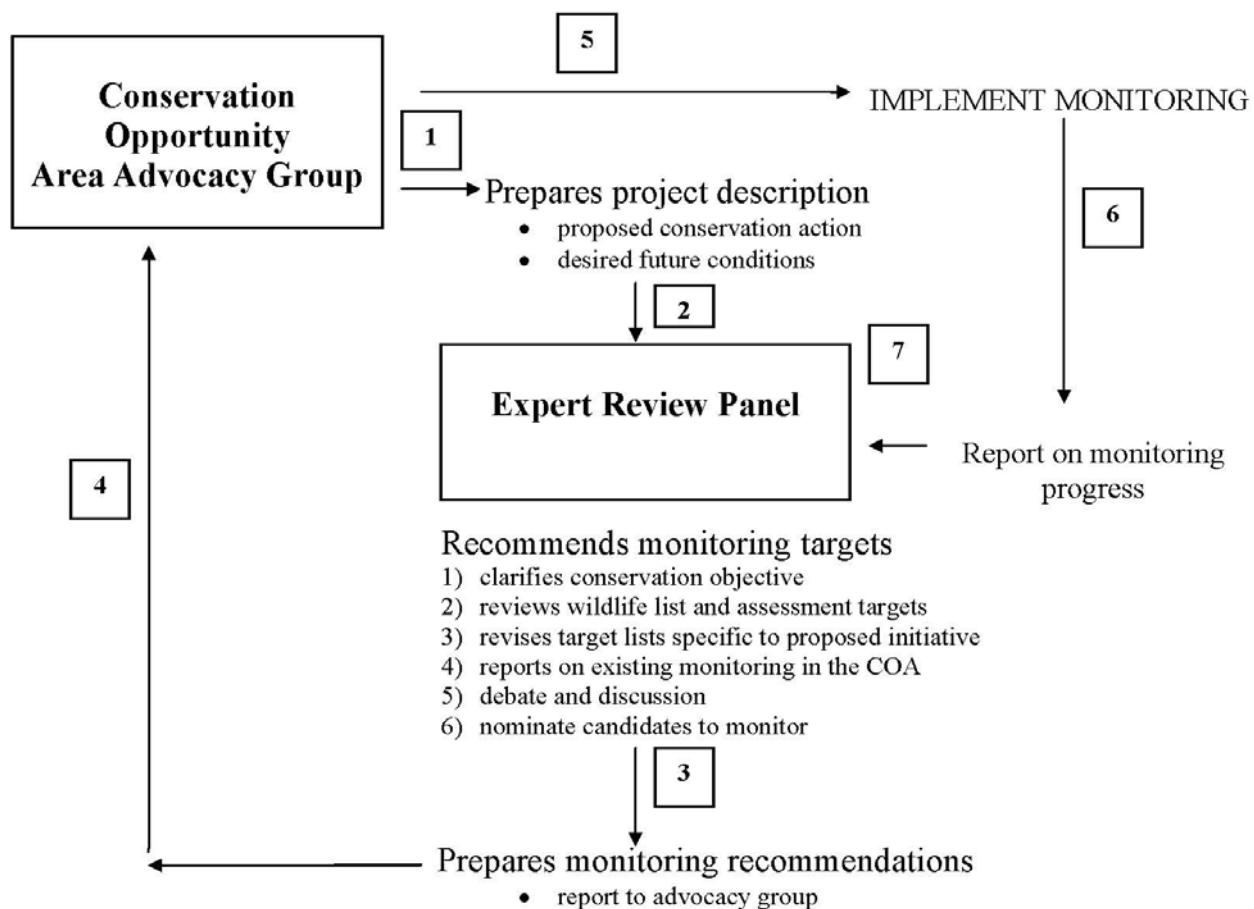


Figure 1. Effectiveness Monitoring Process

These should be species and communities (or related elements of the community) that respond to habitat change, are detectable and to the degree possible, demonstrate public interest and support. The Expert Review Panel evaluates the list of “monitorable” species and communities and then recommends a cross-taxa group of wildlife (and communities) to monitor effectiveness of conservation actions. This recommendation is forwarded to the COA Advocacy Group (stakeholders) and they decide what to monitor.

The role of Department biologists and other experts is to develop monitoring protocols and provide training as needed for the stakeholders. The stakeholders and local publics will participate in monitoring and report back to the Expert Review Panel. The Department will roll up effectiveness monitoring reports, compare and contrast monitoring from the COAs with statewide efforts as appropriate (e.g., Breeding Bird Survey trends), evaluate the effectiveness monitoring and recommend improvements and changes.

The Middle Meramec Conservation Opportunity Area is a good example where there is common vision by a diverse group of stakeholders. Cerulean warblers and forested habitats are part of that vision. A complete list of forest wildlife exists for the Ozarks (Appendix C). Animal targets have been selected for Ozark forests in the Ozark Oak Woodland/Forest LTA Type (refer to Attachment 4). Cerulean warblers are on that list. The advocacy groups for the Middle Meramec have identified bottomland forest restoration as an important initiative and a project description is under development. When they have fully described their initiative, our process would be to convene an Expert Review Panel of species and community experts who understand forest systems. They will review the list of targets and recommend species and communities for monitoring. Their recommendations will be forwarded to the Middle Meramec COA advocacy group for discussion and implementation. In this example, cerulean warbler occurrence will be updated using Heritage methodology, but this species may not necessarily become a measure of effectiveness for the proposed conservation actions – which is primarily bottomland forest restoration.

The Department will strive to develop additional monitoring for the groups of target species (guilds, suites) identified in the assessments, as **monitoring multi-taxa groups of animals and plants is the best approach to evaluating the health of landscapes and natural communities**. We will seek to improve effectiveness monitoring related to conservation actions based on these target groups of wildlife, natural communities and selected abiotic factors. Effectiveness monitoring in the COAs will build on the present monitoring activities by all conservation partners active in the COA, not just the Missouri Department of Conservation.

Very few ecosystem functions can be assessed using only one indicator.... Adopt a relatively simple, flexible system for integrating indicators.

J. E. Herrick et al., 1995

Although monitoring is not well described in the present COA framework, the individual project descriptions (initiatives) will include the kinds of monitoring identified by the stakeholders. **We expect to strengthen landscape, natural community and species monitoring in the COAs. The monitoring will be adaptive, changing with work accomplishment and with new information, and perhaps interpreted differently when evaluated against other statewide monitoring.**

The Expert Review Panel has an additional role of receiving the monitoring reports, integrating this information with new research and statewide monitoring efforts, and evaluating the existing effectiveness monitoring. This is an adaptive process, as monitoring conservation action will change with new information and successful conservation action.

Key Products

- Missouri Department of Conservation Surveys (Appendix M)
- Missouri Natural Heritage Database (Appendix B)
- Existing Monitoring in Conservation Opportunity Areas (Appendix N)
- *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity* (Attachment 7)
- Wildlife Lists by Ecological Section and Primary Habitat Association (Appendix C)
- MDC Terrestrial Biodiversity Assessment (Attachment 2)

Future Steps

1. Evaluate the role of Resource Science Field Stations in guiding, tracking and reporting on effectiveness monitoring in the COAs.
2. Completely revise the plant targets using guidance from *The Terrestrial Natural Communities of Missouri* so that plants are better represented in the potential monitoring framework.
3. Improve animal target lists through additional expert review. Suggest suites of species to monitor based on primary habitat types.
4. Convene an experts group and facilitate the development of a responsive revise process for projects and conservation initiatives.
5. Work with partners and experts to identify and evaluate existing monitoring.
6. Promote continued development of project descriptions within the COAs. Ensure the inclusion of effectiveness monitoring.
7. Use COAs to develop monitoring protocols.
8. Develop vegetation monitoring protocols that will provide quality comparisons of natural communities and restorations.

9. Develop quantitative, realistic measures of natural community quality that can be used for tracking improvements, monitoring and assessment.
10. Support technical training to increase the number of professionals with expertise in natural community and landscape conservation.
11. Develop and implement monitoring protocols for groups of target species by major habitat type.

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“Creating and implementing a monitoring strategy is an exercise in adaptive management, and the monitoring program is itself a step in the larger adaptive process of managing natural resources..... In any case, it is not possible nor especially informative to attempt to monitor all species, or even all species of greatest conservation need, so the list of species to be monitored is more likely to be useful if it is short and strategically developed.”

Peter Schoonmaker and Wayne Luscombe, 2005

6. Descriptions of procedures to review the strategy at intervals not to exceed ten years.

Missouri's Comprehensive Wildlife Conservation Strategy is an approach to conservation planning and implementation that uses ecologically-based assessments and existing plans to integrate conservation action for all wildlife. This approach provides the best opportunity to address comprehensive wildlife conservation and therefore conserve species of conservation concern to prevent the need for future Threatened and Endangered listings.

The Strategy is a conservation planning tool that is updated continuously. Data development will be ongoing and routine. New records and additional data development will continue for the Missouri Fish and Wildlife Information System (MoFWIS) and Missouri Natural Heritage Database, the two primary resources for species and natural community distribution and abundance. Spatial data layers are revised as new information dictates. Species and natural communities of conservation concern are reviewed regularly by species experts with guidance from the Endangered Species Coordinator. The Checklist of Species of Conservation Concern and Natural Communities will be updated and reprinted annually.

Existing Conservation Opportunity Area (COA) profiles will be revised and updated as stakeholder teams request. New Conservation Opportunity Area (COA) profiles will be generated as stakeholder teams develop them. Specific project initiative descriptions will be developed as stakeholder teams identify projects and seek funds for specific initiatives. Department biologists and managers, as well as representatives of our conservation partners, will receive training on use of data sets and spatial data.

Regular review of the existing conservation network will be conducted to evaluate conservation actions related to all wildlife, with specific analysis of benefits to species of conservation concern. These reviews will be conducted by primary habitat types, but also by species or groups of species (guilds), as led by recovery leaders, species experts, Department biologists and managers and conservation partners.

The Strategy is a framework for implementing conservation action and reporting progress for comprehensive wildlife conservation. Every 3 years, the Department will conduct a detailed evaluation of CWCS progress by holding a Wildlife Summit with conservation partners. This review will be an opportunity for the conservation community in Missouri to evaluate how well we are implementing the Strategy, to identify roadblocks to implementation and report on statewide progress on the strategy goals.

Prior to the Summit, the Department will update spatial data layers as needed, revise the Heritage Hotspot layer, ask recovery leaders to evaluate the COA framework and assess progress relating to species and natural communities of conservation concern. The Department will prepare a preliminary report of conservation progress from the COAs. The Summit will be an opportunity to review priorities identified in the strategy and report on the progress of all partners. With participation by conservation partners, the

Summit will be a forum to update the Conservation Opportunity spatial data layer, set new priorities for the near future (ca. 2-3 years) and identify the need for new or updated COA profiles and project descriptions. After the Summit we will prepare a progress report on the Strategy, representing all partner achievements and share an updated COA framework.

Since the Strategy and COA framework is adaptive and changing, a revised strategy at 10 years out will be an outcome of work accomplished and changes already identified by the Department and conservation partners. Over this first cycle of Strategy implementation we will review and evaluate the Strategy and the processes that support it. At 9 years out, the Department will use the action plans and progress reports from the 3 summits to revise the Strategy as recommended by the Department and participating partners and interested publics. This revision will include results of monitoring, report on improvements in data management programs and advice on recent administrative and fiscal changes to the program.

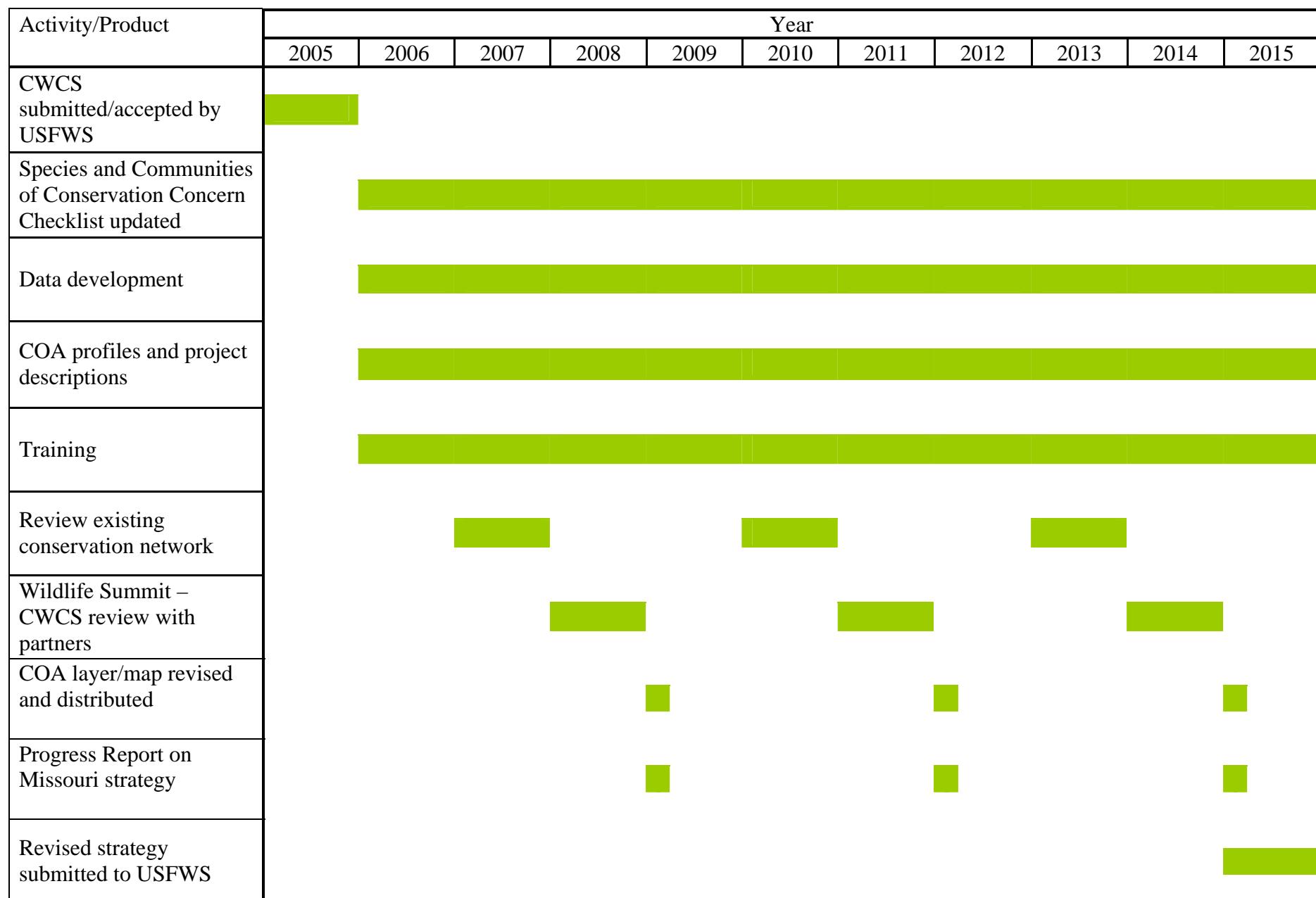
State CWCSSs need to be living dynamic documents [and data sets] in order to be effective and meet future conservation challenges.

John Organ
US Fish and Wildlife Service

Refer to Table 2. Review of the Missouri Strategy through 2015.

The true value of the Strategy will be demonstrated by successfully integrating the conservation action of all conservation partners. The CWCS framework is designed to be adaptive. The data layers and spatial products will not be the same a year from now. New and different partners will represent additional conservation priorities. The Strategy will change with new information, change because of habitat loss and degradation, change because effectiveness monitoring tells us to chart a different course. Our vision for any one conservation opportunity areas may or may not materialize. The Strategy of 2015 may look greatly different than the “first framework” submitted in 2005.

Table 2. Review of the Missouri Strategy through 2015.



7. Plans for coordinating the development, implementation, review, and revision of the plan [strategy] with Federal, State, and local agencies and Indian tribes that manage significant land and water areas within the State or administer programs that significantly affect the conservation of identified species and habitats.

The Department communicates regularly with federal, state, tribal and local governments, as well as with private landowners and private conservation organizations. For Strategy development, the Department invited participation from federal, state and local land management and regulatory offices to participate in Expert Workshops, a Conservation Landscapes Meeting with partners and on individual Conservation Opportunity stakeholder teams.

The Department will host Strategy review meetings and Wildlife Summits (refer to Element 6) and will encourage full participation from existing and new partners. Partners who participate in the Strategy review meetings are also invited to participate as we expand local representation in the Conservation Opportunity Areas. Conservation partners will continue to participate in refining the conservation opportunity framework and designing specific conservation initiatives.

The Department will present the Strategy, and review the existing conservation network, to member meetings and Board meetings of NGOs to discuss how to best use the Strategy to integrate conservation action for all wildlife. The Department will present the Strategy to state, federal and tribal partners, review the existing conservation network and discuss how to evaluate proposed conservation actions within the framework of comprehensive wildlife conservation. (Example, review the USFWS Refuge Comprehensive Conservation Plans (CCPs) as part of the Strategy framework). The Department will report Strategy progress to the Conservation Federation of Missouri (CFM) to reach conservation stakeholders who may not be directly involved in Strategy implementation.

The Department will develop training on the ecological framework used in the Strategy. The Atlas of Missouri Ecoregions and The Terrestrial Natural Communities of Missouri, along with Strategy products like ecoregional targets, will be used to build understanding on the conservation science related to Missouri's Strategy. This training will be open to federal and state partners and private conservation organizations.

The Department will encourage community conservation and will offer training to staff on how to recognize, support and integrate community leaders and individuals into conservation action for all wildlife. The Department will report on the progress of conservation partners when we report progress related to Strategy implementation.

“Design a process that builds advocates.”

Naomi Edelson
International Association of Fish and Wildlife Agencies.

8. Documentation of broad public participation during development and implementation of the Strategy.

The Department of Conservation is committed to broad public participation. The strength of our Strategy's public involvement is that we communicated continuously with the public about their interest and support of wildlife diversity, and we included conservation partners in developing the criteria for, and the selection of, specific geographies for conservation action. **Public involvement relating to the CWCS was guided by “Public Involvement and the Comprehensive Wildlife Strategy in Missouri” (Appendix O).**

This plan described activity in three areas:

- 1) Department-wide surveys and monitoring with the Missouri public in general,
- 2) regular communication and invited participation with conservation partners and
- 3) public notice and comment during Conservation Commission Meetings.

(1) Department-wide Surveys and Monitoring with the Missouri Public in General

Conservation Forums were conducted in each region of the state by the Missouri Department of Conservation in 2003 and 2004. Public profile 2-2004 summarizes the issues that Missourians identified in the most recent forums (available online as a .pdf at: www.mdc.state.mo.us/events/forums). During this round of public meetings (2004) the Director opened the meeting with comments, including the statement, **“We must ensure that public land management addresses the full range of wildlife diversity, game and non-game conservation needs.”** Participants' comments relating to comprehensive wildlife conservation included support for green space, keeping more areas undeveloped, forested and natural lands for wildlife, concern for Ozark streams and water quality in general, concern about exotic carps, concerns about forest health and wildlife diversity, support for landscape scale conservation (especially grasslands), concern about mountain lions and concern for invasive exotic plants in native grasslands. The Department responded to these issues and concerns and considers them in future program development.

A comprehensive survey of Missourians and their views on conservation was completed and made available in July 2004. The final report, “Your Ideas Count!: Report of Results of the 2003 Conservation Opinion Survey for the Missouri Department of Conservation,” provides a statistically valid analysis of Missourians and their relationship to conservation. The cover and preface pages are provided (Appendix P). The full 557-page report is available upon request.

Some interesting results related to comprehensive wildlife conservation are as follows:

- 93.5% of surveyed Missourians are somewhat or very interested in Missouri's fish, forests and wildlife.
- 79.4% strongly agree or mildly agree that Missouri Department of Conservation should conserve and restore rare and endangered plants.
- 83.9% strongly agree or mildly agree that Missouri Department of Conservation should designate “natural areas” to protect Missouri's best examples of forests, prairies, mashes and glades.

- 89.4% are somewhat interested or very interested in observing wildflowers and native plants in the outdoors.
- 58% enjoy wildlife around their home.

The Conservation Opinion Survey and the Conservation Forums both confirm that the vast majority of Missourians support wildlife diversity conservation.

(2) Regular Communication and Invited Participation with Conservation Partners

Citizen involvement in the development of the strategy was by active participation from the broad conservation network in Missouri. We communicated with many conservation partners early in the development of the Strategy so that they understood the opportunity available to them.

Presentations were made to the following partners, agencies and organizations to explain Missouri's Strategy and the opportunity to integrate conservation action for wildlife diversity: Missouri Department of Conservation, The Nature Conservancy – Missouri Chapter, Missouri Resource Assessment Partnership, Mark Twain National Forest, Missouri Prairie Foundation, Audubon Missouri, Conservation Federation of Missouri, Missouri Natural Areas Committee, Quail Unlimited, Missouri Department of Natural Resources – Parks and Historic Preservation, U.S. Fish and Wildlife Service, Society for Conservation Biology and Missouri Academy of Science. In addition, there have been numerous instances of one-on-one communication with partners like Ducks Unlimited, National Wild Turkey Federation and Ozark Regional Land Trust. The membership of these organizations represents tens of thousands of Missourians.

**“Partnerships have
to be somebody’s
job.”**

Terry Johnson
Arizona Fish and Game

During the assessment phase we gathered mission statements and strategic plans (when they existed) for our conservation partners. The Missouri Chapter of the Nature Conservancy provided a recently completed strategic plan. The Department supported the development of strategic plans for Audubon Missouri and the Missouri Prairie Foundation. Their strategic plans, contrasted with the Department Strategic Plan, give clarity on how we can build conservation together in the future.

We engaged partners directly in the assessment phase of Strategy development. We gathered spatial data layers that demonstrated the priority geographies of our conservation partners (Appendix H) and we explained how their conservation priorities would be used in the development of the Strategy. We also offered technical assistance to many partners so they could demonstrate their respective conservation priorities in spatial data sets. The conservation actions of conservation partners were represented and easily integrated into the Conservation Opportunity assessment framework, particularly when provided in a spatial format.

Selected conservation partners were invited to participate in the development of criteria used to evaluate conservation opportunity and identify priority geographies that would eventually become Conservation Opportunity Areas (COAs). This facilitated meeting was conducted August 2004, largely to prepare for the larger partners meeting scheduled for November 2004.

A broad coalition of conservation partners participated in the Conservation Landscapes Meeting on November 3-4, 2004 (Appendices Q, R). At the meeting, we defined and discussed conservation opportunity. We used spatial layers to demonstrate a statewide view of conservation opportunity. We reviewed criteria for selecting specific geographies. The coalition of partners identified candidate areas and then selected the first 30+ Conservation Opportunity Areas (COAs) to begin working on. Participants volunteered to be the lead person for a COA, making a commitment to host the first stakeholder meeting and collect information to explain comprehensive wildlife conservation and develop the information needed for the draft COA profile. As individuals volunteered to lead a COA, the other participating partners indicated the COA stakeholder meetings to which they would like to be invited. This was an effective way to build the initial stakeholder team. As the team leaders planned the meeting, they were challenged to invite additional stakeholders, especially more local individuals and communities that were not present at the statewide meeting.

Individual stakeholder meetings were conducted between December 2004 and January 2005. The Missouri Department of Conservation provided access to spatial data layers and facilitators. We also provided guidance about how to conduct the meetings (Appendix S), identifying specific information needs for the development of profiles.

The Department took the results of the stakeholder meetings and prepared draft COA profiles in a format that is generally consistent. All participants, including the additional stakeholders, were given the opportunity to review and comment on the COA profiles while they were under development. The vision, supporting information about the COA and many of the photographs were provided by members of the stakeholder team. The COA profile and subsequent project descriptions become a tool for conservation action. Collectively these products represent an ambitious view of conservation action, *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity* (Attachment 7).

“Build ownership through participation. The best way to create ownership is to have those responsible for implementation develop the plan for themselves.”

Margaret Wheatley
Leadership and the New Science: Discovering Order in a Chaotic World

The COA profile provides clarity on what conservation vision has been proposed, with the neighborhood of people who are most affected, and what kind of citizen participation is desired by stakeholders. Conservation partners become integral to delivering public participation. Stakeholder meetings for specific COAs included local government officials, local land trusts, community groups and conservation minded individuals. Stakeholder teams also included a list of potential future partners in their COA profile – a commitment to continue to expand public involvement in the COAs.

The Conservation Federation of Missouri (CFM) provided a forum to explain the Strategy and comprehensive wildlife conservation at their Spring 2005 meeting (the PowerPoint presentation, “CWS to CFM,” is provided on CD). Not all CFM affiliates (Appendix T), or their representatives, were present to hear the presentation on all wildlife conservation, but certainly this forum allowed many more Missourians the opportunity to understand and comment on the Strategy. CFM has a formal process to raise the profile of specific issues, request a change in the present program or lend support for an initiative – the development of resolutions by committees. These resolutions are forwarded to the larger body of representatives for discussion and support. CFM affiliates have passed resolutions that support continued funding for State Wildlife Grants and support development of the Comprehensive Wildlife Conservation Strategy (Appendix U).

(3) Public Notice and Comment during Conservation Commission Meetings

The Conservation Commission holds public meetings regularly. Anyone may contact the Conservation Commission with comments or request to appear at a Commission meeting.

Dennis Figg presented plans for the development of a Comprehensive Wildlife Strategy at the November 2003 meeting of the Missouri Conservation Commission.

Dennis Figg and David Erickson explained the approach and content of Missouri’s Comprehensive Wildlife Conservation Strategy (CWCS) at the July 2005 meeting of the Missouri Conservation Commission (the PowerPoint presentation, “All Wildlife Conservation in Missouri,” is provided on CD).

Director John Hoskins asked the Commissioners at the August 2005 Commission meeting for agreement to sign and forward the Strategy to the U.S. Fish and Wildlife Service by the October 2005 deadline.

In addition, the Conservation Commissioners are updated regularly on the kinds of work, and the specific projects funded by State Wildlife Grants and other sources of money related to comprehensive wildlife conservation.

The Department of Conservation will continue to involve the public in defining our conservation opportunity and implementing conservation actions for all wildlife.

One of the primary communications tool for the Department of Conservation is the *Missouri Conservationist* magazine. Over 500,000 Missourians receive the magazine every month. The Department will “kick-off” the conservation actions made possible by

Missouri's Strategy with the October 2005 issue of the *Missouri Conservationist* (Attachment 10). This special theme issue will focus on *all wildlife* conservation. It will highlight the kinds of work made possible by comprehensive wildlife conservation using the Strategy framework. There will be text and pictures for each of the four ecological sections. Each ecological section will include information about one COA, identify an invasive exotic species that threatens wildlife diversity, profile at least one conservation partner and have as many photographs of target species and representative animals, plants and natural communities as space allows.

Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity (Attachment 7) will be distributed to participating conservation partners and stakeholders who have participated in comprehensive conservation planning to date. Delivery of the Directory will create additional discussion and conservation planning with existing and new partners. The Department will make presentations to partners on how to use the COA framework to direct resources and build better partnerships, how to evaluate the existing conservation network against their conservation goals and grow the COA framework by preparing more profiles and describing more initiatives. To a large degree further development of the COA framework will be a response to interested public involvement.

The Department will improve access to *all wildlife* conservation and specific portions of the Strategy through development of the Department's website. The interested public should have access to the ecological background for our conservation planning, lists of *wildlife* by ecological section, COA profiles as well as progress reports related to comprehensive wildlife conservation.

The Strategy provides a mechanism to bring diverse partners together into the future and builds on the strength of government-led conservation delivery and existing partnerships. The Department will explore how to put in place a partnership structure that will facilitate partners working together, designing a partnership process that serves Missourians and improves comprehensive wildlife conservation.

A desirable outcome of the COAs and stakeholder work to date is to generate advocacy groups for specific geographies or specific conservation initiatives – these groups will create public involvement in new and different ways.

Key Products

- Public Involvement and the Comprehensive Wildlife Strategy in Missouri (Appendix O)
- *Your Ideas Count!: Report of Results of the 2003 Conservation Opinion Survey for the Missouri Department of Conservation* (Appendix P)
- Conservation Opportunity Spatial Layers – MDC and Partners (Appendix H)
- Comprehensive Wildlife Conservation Strategy Partners (Appendix Q)
- Conservation Landscapes Meeting Agenda (Appendix R)
- Guidance for Conservation Opportunity Area Stakeholder Teams (Appendix S)

- *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity* (Attachment 7)
- Conservation Federation of Missouri Affiliates (Appendix T)
- Conservation Federation of Missouri Resolution (Appendix U)
- October 2005 *Missouri Conservationist* (Attachment 10)

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